CLAIMS

What is claimed is:

1. A rubber cylinder sleeve for an offset printing press, the rubber cylinder sleeve comprising:

an inner carrier sleeve (2) having a circumferential and an axial direction, the carrier expandable outwardly by an application of compressed air from the interior; and

a single rubber layer (3) having an inner surface disposed on the inner carrier sleeve (2) and an outer surface (7) for contacting a printing plate; the single rubber layer (3) including

a plurality of compressible elements (8) for increasing the relative compressibility K of the single rubber layer (3), and

a plurality of filaments (9) for increasing the stiffness S of the single rubber layer (3),

the compressible elements (8) and the filaments (9) disposed distal from the outer surface (7).

2. The rubber cylinder sleeve for an offset printing press of claim 1,

wherein the single rubber layer (3) has a thickness and a length perpendicular to the thickness, and

wherein the compressible elements (8) are disposed uniformly in the length and thickness of the single rubber layer (3) so that the relative compressibility K

of the single rubber layer (3) is equivalent through the thickness, the compressible elements (8) disposed in the axial direction of the inner carrier sleeve (2).

3. The rubber cylinder sleeve for an offset printing press of claim 1,

wherein the single rubber layer (3) has a radial thickness and an inner and an outer arcuate length, and

wherein the compressible elements (8) are disposed uniformly in the radial thickness of the single rubber layer (3) and varying uniformly from a greater density at the inner arcuate length to a lesser density at the outer arcuate length so that the relative compressibility K of the single rubber layer (3) is equivalent through the radial thickness, the compressible elements (8) disposed in the axial direction of the inner carrier sleeve (2).

4. The rubber cylinder sleeve for an offset printing press of claim 1;

wherein the single rubber layer (3) includes a thickness and a length perpendicular to the thickness, and

wherein the filaments (9) are disposed uniformly in the length and thickness of the single rubber layer (3), the filaments (9) disposed in the circumferential direction of inner carrier sleeve (2).

5. The rubber cylinder sleeve for an offset printing press of claim 1,

wherein the single rubber layer (3) has a radial thickness and an inner and an outer arcuate length, and

wherein filaments (9) are disposed uniformly in the radial thickness of the single rubber layer (3) and varying uniformly from a greater density at the inner arcuate length to a lesser density at the outer arcuate length, the filaments (9) disposed in the circumferential direction of the inner carrier sleeve (2).

6. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the compressible elements (8) are air pockets.

7. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the compressible elements (8) are compressible fibers.

8. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the single rubber layer (3) is endless.

9. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the single rubber layer (3) includes a joint (10).

10. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the single rubber layer (3) includes a gap (11).

11. The rubber cylinder sleeve for an offset printing press of claim 1, further comprising an adhesive bond between the single rubber layer (3) and the inner carrier sleeve (2).

12. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the single rubber layer (3) is vulcanized to the inner carrier sleeve (2).

13. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the filaments (9) have a length in the range of 10 mm to 30 mm.

14. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the single rubber layer (3) includes a circumferential centerline; and wherein

the compressible elements (8) are more densely disposed in the single rubber layer (3) between the centerline and the inner surface than in the single rubber layer (3) between the centerline and the outer surface (7), and

a majority of the filaments (9) are more densely disposed in the single rubber layer (3) between the centerline and the outer surface (7) than in the single rubber layer (3) between the centerline and the inner surface.

15. The rubber cylinder sleeve for an offset printing press of claim 1, wherein the compressible elements (8) are disposed in the single rubber layer (3) so that the relative compressibility K of the single rubber layer (3) increases continuously from the outer surface (7) to the inner surface, and the filaments (9) are disposed in the single rubber layer (3) so that the stiffness S of the single rubber layer (3) increases continuously from the inner surface to the outer surface (7).

16. A single rubber layer for transferring an image in a printing press, the single rubber layer comprising:

an inner surface for contacting a carrier sleeve;

an outer surface (7) for contacting a printing plate;

a compressible element (8) for increasing the relative compressibility K of the rubber layer; and

a filament (9) for increasing the stiffness S of the single rubber layer;

the compressible element (8) and the filament (9) disposed distal from the outer surface.

17. The single rubber layer for transferring an image in a printing press of claim 16, wherein the single rubber layer (3) includes a circumferential centerline, and wherein the compressible elements (8) are more densely disposed in the single rubber layer (3) between the centerline and the inner surface than in the single rubber layer (3) between the centerline and outer surface (7) and a majority of the filaments (9) are more densely disposed in the single rubber layer (3) between the centerline and outer surface (7) than in the single rubber layer (3) between the centerline and the inner surface.

18. A printing cylinder assembly for an offset printing press, the printing cylinder assembly comprising:

a printing unit cylinder (5) including a passage for compressed air from the interior of the cylinder to the exterior;

an inner carrier sleeve (2) having a circumferential and an axial direction, the carrier expandable outwardly by an application of compressed air from the printing unit cylinder (5), the inner carrier sleeve (2) for fitting over the printing unit cylinder (5); and

a single rubber layer (3) having an inner surface disposed on the inner carrier sleeve (2) and an outer surface (7) for contacting a printing plate, the single rubber layer (3) including

a plurality of compressible elements (8) for increasing the relative compressibility K of the rubber layer, and

a plurality of filaments (9) for increasing the stiffness S of the rubber layer,

the compressible elements (8) and the filaments (9) disposed distal from the outer surface (7).